Echoic and non-echoic confirming affirmative responses in spoken Brazilian Portuguese

Abstract
We describe the system of confirming affirmative responses in Brazilian Portuguese (BP) on the basis of a corpus of natural spoken dialogues between interlocutors that share a high degree of familiarity. While the BP response system has been characterized as an echo system (Sadock and Zwicky 1985), the unmarked option being a verb that echoes the verb in the antecedent utterance, our analysis reveals that this characterization only applies to polar question antecedents. Using inferential statistical modeling, we demonstrate that the echoicity of a verbal response crucially depends on the speech act of the antecedent. The use of echoic responses is more likely for antecedents in which the speaker displays a low degree of commitment to the truth of the utterance than for antecedents with a high degree of commitment. Our analysis also reveals that it is necessary to distinguish two specific verbal response types – é 'is' and tá 'is' – from other verbal responses. Whereas é has been conventionalized as a multi-purpose affirmation particle, tá is typically used to respond to orders or proposals, which is why é and tá are significantly less probable to be used as echoes than other verbal responses.

Keywords
Answer; Repetition; Brazilian Portuguese; Variationist method; Answer Particles

1. Introduction

In their seminal paper on speech act distinctions in syntax, Sadock and Zwicky (1985: 189–191) establish a tripartite typology of response systems in the world's languages. Some languages use particles as responses to polar information questions or assertions. In yes/no systems (e.g., English), these particles indicate whether or not the utterer of the particle believes the proposition of the antecedent to be correct, whereas in agree/disagree systems (e.g., Japanese), the particles indicate whether or not the answer agrees in polarity with the antecedent. Thus, in English responding Yes to Is it hot today? and Yes, it is to its negated counterpart Isn't it hot today? will confirm that it is hot today. In contrast, in Japanese, responding Hai 'yes' to the Japanese equivalent of Isn't it hot today? will confirm that it is NOT hot today. In order to confirm that it is hot today the negative response Iie, kyoo wa atui desu 'No, it's hot today' has to be used (Sadock and Zwicky 1985: 190). Languages such as Welsh, Finnish and Portuguese have an echoic response system. In these systems, an affirmative response to a polar question or assertion is given by repeating the verb of the antecedent, as in the Brazilian Portuguese (BP) example (1), although all of the three mentioned languages also possess response particles

(cf. Jones 1999; Sorjonen 2001a; b; Martins 2016, respectively).[1] Negative responses are usually given by using a negative particle, e.g., não ‘no’ in Portuguese, which in BP is often doubled as não VP não (Lima and Mello 2016).

Example (1): Desinfetante[2]
Source: C-ORAL BRASIL (Raso and Mello 2012), bfamdl01

	01	REN	desinfetante a gente preCIsa?
			desinfectant the people need.PRS.3SG
			‘desinfectant, do we need this?’
	02		(1.5)
-->	03	FLA	preCIsa;
			need.PRS.3SG
			‘yes’

However, BP also uses verbal responses that do not repeat the finite verb of the antecedent, specifically the forms é ‘be.PRS.3SG’ and tá ‘be.PRS.3SG’ (cf. De Oliveira 2000: 250-1) derived from the copular verbs ser ‘be’ and estar ‘be/stand’ (ex. 2–3).[3]

Example (2): Museum
Source: C-ORAL BRASIL (Raso and Mello 2012), bfamdl21

01	MAR	acho que eles têm medo do de roubAr:
		think.PRS.1SG that they have.PRS.3SG fear of.the of rob.INF
		'I think that they are afraid of someone stealing'
02		as coisas que têm lá DEntro,
		the things that have.PRS.3SG there inside
		'the things inside'
03		[NÉ?=]
		'right'
		‘right?’
04	ERN	((inhale))

[1] However, some languages, such as Scottish Gaelic, have a ‘pure’ echoic response system without any response particles (Lachlan Mackenzie, p.c.).

[2] In this and the following examples from the corpus data, we use the GAT 2 conversation analytic transcription system by Selting et al. (2011), as outlined in the appendix (Table 6). We also use a simplified system of interlinear glosses.

[3] The alternation between ser and estar, common to all Romance languages, does not exist in Germanic languages, which is why we translate both é and tá with a simple 'is'. We refer the reader to the beginning of Section 4 for a discussion of the relevance of the etymology of ser and estar for their use as response markers.

05 MAR =fala que é porque: (1.0) atraPALha né?
say.PRS.3SG that be.PRS.3SG because damage.PRS.3SG right
'they say that it's because it causes damage, right?'

06 pode: causar alguma:
can.PRS.3SG cause.INF some
'it can cause some...'

07 (1.5)

--> 08 ERN É;
be.PRS.3SG
'yes'

09 ERN mas sem FLASH-
but without flash
'but without flash'

Example (3): Chão
Source: C-ORAL BRASIL (Raso and Mello 2012), bfamdl02

01 BAL sÓ uma observaÇÃO;
only an observation
'only one observation'

02 BEL EH;
alright
'alright'

03 BAL nUnca (.) deixa isso aqui bater no CHÃO;
never let.PRS.3SG this here fall.INF in.the floor
'Never let this [thing] here fall to the floor'

--> 04 BRU [TÁ;]
be.PRS.3SG
'okay'

05 BAL [cê] pode deixar o CAbo bater no chÃo;=
you can.PRS3SG let.INF the cable fall.INF in.the floor
'you can let the cable fall to the floor'

06 =mas essas pOntas jaMAIS,
but these spikes never
'but never these spikes'

The primary research question of this paper is why BP speakers sometimes use affirmative echoic responses and sometimes not when confirming the content of an interlocutor's preceding speech act. Following the suggestion of Farkas and Bruce (2010: 116), we seek to integrate the effects that "various types of bias [that] various types of [...] questions and assertions come with" on the choice of affirmative

response type, and specifically confirming affirmative responses such as those that we analyze in what follows. Our qualitative and quantitative analyses of familiar dialogues in spoken Brazilian Portuguese shows that it is possible to determine the likelihood of a speaker using a confirming affirmative echoic response based on the degree of that speaker's epistemic commitment to the antecedent.[4] This finding can be explained by the fact that (a) because echoic confirming affirmative responses repeat an element uttered by the previous speaker, they are better suited to express agreement between the speakers regarding the truth of the proposition at stake (in our terms, Common Ground alignment) than non-echoic responses and (b) antecedents with a weaker degree of speaker commitment call for a stronger expression of Common Ground alignment because the speaker ostensively needs the hearer's opinion. Our analysis also reveals that in BP, é and tá have been conventionalized as confirming affirmative responses to assertions, and proposals and orders, respectively.

2. Previous studies

Previous studies on the Portuguese response system (Kato and Tarallo 1992; Urbano et al. 1993; Santos 2004; Martins 2013; Hengeveld and Mackenzie 2014: 221-225; Martins 2016) are mostly interested in (a) the precise function and (b) the morphosyntax of the responses. Consider for instance Martins' work (2013, 2016) on Portuguese responses. Martins describes the European response system in terms of the typology of responses developed by Farkas and Bruce (2010), which in turn builds on Pope (1976). Following these authors, she distinguishes between relative and absolute polarity features. Relative polarity, operationalized as [same] vs. [reverse] refers to whether or not the utterer of the response agrees with the propositional content of the antecedent. In contrast, absolute polarity, operationalized as [+] vs. [–] refers to whether the response is affirmative or negative. As illustrated in (4), the combination of the two parameters leads to four types of responses: confirming affirmations [same, +], reversing negations [reverse, –], reversing affirmations [reverse, +] and confirming negations [same, –].

(4) a. A: Chegou o João. / Chegou o João?
arrive.PST.3SG the João arrive.PST.3SG the João
'João arrived. / Did João arrive?'

B: a. Chegou. [same, +]
arrive.PST.PFV.3SG
'Yes.'

b. Não (chegou não). [reverse, –]
no arrive.PST.PFV.3SG no

[4] We define epistemic commitment as "the degree of confidence they [the speakers, MR/SS] have in what they are saying" (Palmer 2001[1986]: 35).

‘No (he did not arrive).’

b. A: Não chegou o João. / Não chegou o João?
not arrive.PST.3SG the João not arrive.PST.3SG the João
‘João did not arrive. Did João not arrive?’

B: a. Chegou sim. [reverse, +]
arrive.PST.PFV.3SG yes
‘Yes, he did.’

b. Não. [same, –]
no
‘No.’

The examples in (4) present verbal echoic responses that are limited to confirming affirmations. In reversing affirmations, echoic responses are possible if modified with a reinforcing particle or with reduplication of the verb. The exact nature of these reinforcement strategies is subject to dialectal variation (see 5).

(5) A: O João não foi à festa.
the João not go.PST.3SG to.the party
‘João didn’t go to the party’

B: a. Foi foi! (only EP)
go.PST.PFV.3SG go.PST.PFV.3SG
‘Yes he did go!’

b. Foi pois! (only EP)
go.PST.PFV.3SG then
‘Yes he did go!’

c. Foi sim! (both BP and EP)
go.PST.PFV.3SG yes
‘Yes he did go!’

Martins (2016) also discusses, to some extent, the variation between echoic and non-echoic responses, but does not mention the possibility in European Portuguese of using tá as a response type, which is frequent in Brazilian Portuguese (see [3]). Table 1 summarizes her typology.

Table 1. Distribution of European Portuguese response types (adapted from Martins 2016: 596)

	V(erb)	sim	é
Confirming affirmation	+	+	+
Reversing affirmation	+	–	–
Confirming negation	–	+/–	+
Responds to indirect interrogatives	+	–	–
Responds to matrix predicates	+	+	–
Responds to interrogatives with coordinated sentences	–	+	+

Crucially for us, only in confirming affirmation contexts do we find variation in Brazilian Portuguese between echoic V(erb) and non-echoic sim 'yes' and é 'is' responses. Martins discusses syntactic predictors that might govern the variation between these response types (cf. the last three lines in Table 1). For instance, she argues that V can correctly respond to indirect interrogatives, whereas sim and é cannot (see 6). In contrast, antecedents with more than one verb phrase exclude use of V since only one verb can be echoed felicitously (see 7).

(6) A: Sabem se ele telefonou ao pai? (Martins 2016: 595)
know.PRS.3PL if he call.PST.3SG to.the dad
'Do you know whether he called dad?'

B: a. Telefonou.
call.PST.3SG
'Yes.'

b. #Sim.[5]
yes
'Yes. (we know whether he called dad)'

c. *É.
be.PRS.3SG
'Yes.'

(7) A: A Joana arranjou emprego e comprou uma casa? (ibid.)
the Joana get.PST.3SG job and buy.PST.3SG a house
'Did Joana get a job and buy a house?'

B: a. Foi.
be.PST.3SG

[5] Martins uses the hashtag (#) to signal that a response is pragmatically infelicitous.

‘Yes.’

b. É.
be.RS.3SG
‘Yes.’

c. Sim.
yes
‘Yes’

d. *Arranjou.[6]
get.PST.3SG
‘Yes.’

e. #Comprou.
buy.PST.3SG
‘Yes’

While Martins’ distinction between relative and absolute polarity proves to be a strong indicator of the choice of the response (see lines 1–3 in Table 1), it is doubtful whether the syntactic constraints summarized in lines 4–6 in Table 1 can account for all variation in confirming affirmation contexts. For instance, in (1)–(3) above none of Martins' syntactic parameters apply, leaving us with no means to explain the variation. There are however some disparate comments in the literature pointing towards the relevance of the antecedent of the response, i.e. the preceding speech act. For instance, Santos (2004) argues that é responses are unavailable as responses to indirect requests or invitations, whereas sim and V responses are (8).

(8) A: Podes fechar a janela? (Santos 2004: 4)
can.PRS.2SG close the window
‘Can you close the window?’

B: a. Sim.
yes
‘Yes.’

b. Posso.
can.PRS.1SG
‘Yes.’

c. #É.
be.PRS.3SG
‘Yes’

[6] Although we disagree with Martins’ classification of the response arranjou in this context as ungrammatical, it is clearly pragmatically infelicitous like the response comprou (7e).

From a distinct perspective, in her analysis of BP affirmative responses Armstrong (2008) argues that "if we are to discover the licensing factors for any response, it is imperative that we analyze the questions that precede a given response" (289). Her work deviates from most other work on the topic in taking the propositional content of preceding questions into account, not only their polarity and syntactic properties as in Martins' and other research on responses. Armstrong, in her model, proposes an explanation for the variation in the BP affirmative response system using the pragmatic criteria of evidence and belief. These two notions interact in the choice of response type: speakers may have neither evidence for nor belief in the truth of a proposition, they may have a belief without evidence, or they may have both evidence and belief. Their belief may also be biased positively or negatively toward a proposition (leading to what are typically called "biased" questions), supported or not by evidence, or they may truly have no belief toward the proposition (they are asking a question that they are truly ignorant about). Presumably speakers cannot have a belief that disagrees with the evidence available to them, since such a situation would result in a lack of congruence and thus in contradiction.

Armstrong argues that the requisite of adding a reinforcing particle in BP reversing affirmations is due to the fact that the response utterer holds a belief that contrasts with the antecedent utterer's belief. Consequently, the reinforcing particle is used in order to license the response as compelling evidence against the antecedent utterer's belief. This pragmatic mechanism is at work even in contexts that are not strictly reversing affirmations. Consider, for instance, example (9) from Armstrong's paper, in which the interviewer's question is biased (Fernanda Young does not appear to believe that Marina Lima really listens to the type of music being asked about). The "emphatic" response by Marina Lima is licensed by the fact that she strongly disagrees with this belief. It thus appears that in order to select the appropriate response to a question, the utterer of the response has to infer the commitment of the questioner towards the proposition in the question. However, such commitment is always gradual; for this reason we expect variation with respect to response type.

(9) Context: An interviewer, Fernanda Young interviews a Brazilian celebrity, Marina Lima, asking her various questions about her life.

Fernanda Young: Marina, seja honesta, você gosta de Jota
Marina, be.PRS.SBJ.3SG honest you like.PRS.3SG of Jota
Quest e axé music? Você não tem cara
Quest and axé music you not have.PRS.3SG face
de quem escuta isso!
of who listen.PRS.3SG this
'Marina, be honest, do you like Jota Quest and axé music? You don't look like someone who listens to that!'

--> Marina Lima: Gosto. Gosto sim!
like.PRS.1SG like.PRS.1SG yes
'Yes. Yes I do!'

(Armstrong 2008: 293)

Armstrong also shows to some degree that the correlation between the interlocutors' epistemic stance towards the antecedent and the selection of the response type is important for whether or not an echoic response is selected. For instance, Armstrong claims that in the last line of (10), speaker A could have also responded to the question using the echoic response fico 'get.PRS.1SG'. However, A does not do so because the question has been inferred from A's claim that when A's team wins A drinks one [beer] after another. In other words, the non-echoic response is preferred because both the utterer of the antecedent and that of the response hold a strong positive belief towards the proposition of the antecedent (i.e., A gets drunk in such situations).

(10) A: Ham? eu não gosto de muito álcôol. Eu tenho pavor.
huh I not like.PRS.1SG of much alcohol I have.PRS.1SG fear
A cerveja tem um pouquinho, mas dá para tomar.
the beer have.PRS.3SG a little but give.PRS.3SG for drink.INF
'Huh? I don't like alcohol very much. I dread it. Beer has a little, but it's OK to drink.'

B: Mas, quando seu time ganha...
but when your team win.PRS.3SG
'But, when your team wins ...'

A: Isso aí é uma atrás da outra.
this there be.PRS.3SG one after of.the other
'Then it's one [beer] after another.'

B: (rindo) Fica de porre?
laughing get.PRS.3SG of drunk
(laughing) 'You get drunk?'

--> A: É .
be.PRS.3SG
'Yes'

(Armstrong 2008: 294)

We are sympathetic to the discourse-pragmatic model in Armstrong (2008); in particular, we ascribe to her view that affirmative responses must be analyzed in the context of preceding turns and cannot be disconnected from the propositional content of the question or the questioners' epistemic stance towards that content. However, her model has not been tested on naturally-occurring spoken corpus data from BP. Thus, one goal in this paper is to put her findings to the test using such data. In

addition, since she limited her (qualitative) focus to responses to questions, we also expand our perspective to affirmative responses to any type of preceding speech acts.

Even more importantly, while Armstrong's analysis suggests a correlation between the interlocutors' epistemic stance towards the antecedent and whether or not the response is echoic, she does not offer an explanation for this correlation. We believe that in order to shed light on this question, it is necessary to substantially refine Armstrong's concept of belief and evidence.

We propose to model the correlation between affirmative responses and their antecedents in terms of the notion of the epistemic gradient proposed by Enfield, Brown and De Ruiter (2012). These authors argue that information questions and assertions can be described in terms of the epistemic commitment of the speaker towards the truth of the proposition (similar to Armstrong's belief). For instance, they argue that for a proposition such as 'It's still snowing outside', a "speaker might know for sure that it is still snowing outside because he has seen it, while a listener might be less certain of it because her only evidence is hearsay" (193). Information questions instantiate a communicative situation in which the speaker (S) has a low degree of epistemic commitment (C_p) and the hearer (H) a high degree of epistemic commitment towards the proposition in the question. In assertions, this relationship is inversed, given that S has a high degree of C_p and H a low degree of C_p. Put simply, questions are typically used to ask for information that the speaker does not know but which she assumes is known to the hearer and which the hearer is willing and able to share. In contrast, assertions are typically used to furnish the hearer with information that the speaker assumes unknown to the hearer. The epistemic gradient then refers to the "difference between interlocutors in degree and kind of epistemic commitment" (193). In line with Armstrong's (2008) and our description of the affirmative response system in BP, the assumption of the relevance of the epistemic gradient would lead to the prediction summarized in (11).

(11)	[S=low C_p, H=high C_p]	[S=mid C_p, H=mid C_p]	[S=high C_p, H=low C_p]
	+ echoic use	± echoic use	– echoic use

Crucially, the speech act of the antecedent (marked overwhelmingly by prosody in BP) is not the only type of evidence the respondent has for the degree of epistemic commitment of the utterer of the antecedent towards the proposition expressed in the antecedent. For instance, Enfield et al. (2012) propose that tag questions (as in Está chovendo, né? 'It's raining, isn't it?') have a 'tilting' function with respect to the epistemic gradient and thus serve to make "finer distinctions within this gradient possibility space". Tag questions lower the antecedent utterer's claim of knowing the truth of the antecedent proposition, thus equalizing to some degree the epistemic

gradient (cf. also McGregor 1997; Mithun 2012).[7] Likewise, one can assume that modalization by epistemic expressions (e.g., Talvez esteja chovendo. 'Maybe it's raining.') or modal morphology (e.g., Deve estar chovendo. 'It must be raining') conveys the same effect. Our proposal therefore predicts that the probability of a speaker employing an echoic response depends on both the speech act of the antecedent and such 'tilting' strategies.

3. Data and analytical approach

3.1 Data collection

In order to describe the use of confirming affirmative responses in BP, we examined the C-ORAL BRASIL, a reference corpus of BP spontaneous speech. The C-ORAL BRASIL contains 139 texts that represent familiar or public monologues, dialogues and conversations. Most participants are speakers from Belo Horizonte, Minas Gerais province, in the southeast, a dialect relatively close to the BP spoken in Rio de Janeiro and São Paulo provinces.

We concentrated on one type of diaphasic situation in the corpus, that of familiar dialogues (n=60). These had a total length of 19.34 hours. We extracted all confirming affirmative responses of the form V, é, tá, sim 'yes' and, additionally, isso 'that's it' from the corpus of familiar dialogues by listening to the audio files. This procedure was more reliable than automatic extraction with respect to our ability to

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[7] This is a grossly simplified analysis of the function of tag questions. As summarized in Kimps et al. (2014: 65), tag questions can be either informational (see ia) or confirmatory (ib). Informational tag questions are formally characterized by a rising intonation and invite verification by the hearer. In contrast, confirmatory tag questions are characterized by a falling intonation and invite confirmation by the hearer. Consequently, confirmatory tag questions do not behave according to Enfield et al.'s (2012) definition; one might assume that in such tag questions, the epistemic gradient is not tilted. In addition, tag questions can have a multitude of functions in interaction that only loosely correspond to this distinction, which was established in "grammar-based " approaches (Kimps et al. 2014, Kimps 2018).

(i) a. She was A\NGry, W/ASn't she?
b. She was A\NGry, W\ASn't she. (Quirk et al. 1985: 811)

Crucially however, it seems to us that even confirmatory tag questions tilt the epistemic gradient to some degree. In inviting a confirmation by the speaker, such tag questions still open up the possibility for the hearer to negate the proposition (this is what distinguishes the use of confirmatory tag questions from simple affirmations). They thus do transfer epistemic authority over the proposition to the hearer, which is why we believe that with respect to the question of the epistemic gradient, the difference between the two tag question types is a gradual one. In addition, Kimps et al.'s results demonstrate that informational tag questions appear to be the more frequent type; in their English data, they classify about 65% of the tag questions as including a questioning dimension (either as "statement-question blends" or questions) and only 20.96% as real statements. Although we believe that distinguishing between these two types has the potential of improving the results of this paper, we therefore do not believe that it would significantly change the overall results of the paper and leave this question to further research.

assess whether a token actually constituted an affirmation (as discussed below, verbal responses can also be used as reversing affirmations) and the classification of contextual variables, in particular, the identification of the antecedent utterance and the classification of its speech act (an approach also adopted for C-ORAL BRASIL data in Lima and Mello 2016). This extraction procedure resulted in n=901 tokens of confirming affirmative responses.

3.2 Description of the variable context

We used variationist methodology (cf., e.g., Tagliamonte 2006) to determine (a) in which contexts BP speakers prefer echoic over non-echoic confirming affirmative responses and (b) which response types were used in which contexts. As is common to variationist approaches, this procedure required careful delimitation of the variable context, i.e. the discourse contexts in which all of the examined response types have overlapping distributions, and are in principle interchangeable. In our case, this amounted to describing the context in which responses (a) can be echoic or not and (b) can fulfill a comparable discourse function ("weak complementarity" per Sankoff and Thibault 1981).

First, we restricted the variable context to responses describable as confirming affirmations because, as seen in Section 2, the use of é and tá is restricted to specifically confirming affirmations (though they are also found as confirming negations). Since we were interested in the variation between é, tá, and other verbal confirming affirmative responses, we therefore excluded reversing affirmations from our corpus (negative responses were not collected).

Second, we restricted attention to cases in which the antecedent contained a finite verb that could be echoed in the response. While it is possible to use é and tá to respond to a non-verbal antecedent (cf. example 12), this is not possible for other verbs, thus inclusion of such cases would contradict our definition of the variable context. In example (12), interlocutors LUC and FLA are describing a painting, and LUC uses é to signal agreement with FLA's interpretation of the painting as "a mythological animal."

Example (12): Bichos
Source: C-ORAL BRASIL (Raso and Mello 2012), bfamdl09

	01	LUC	[um] bicho qualQUER;
			a beast any
			'some kind of beast'
	02	AND	um animal <<creaky> mitoLÓgi[co]; >
			an animal mythological
			'a mythological animal'
-->	03	LUC	[É;]
			be.PRS.3SG

‘yes’

In Table 2, we provide an overview of the types of affirmative responses remaining in our corpus after exclusion steps 1 and 2, and the total number of occurrences for each. We include a brief description of their prototypical functions, which for the sake of brevity we cannot explain in detail in this paper.

Table 2. Distribution of types of confirming affirmative responses after exclusion steps 1 and 2

Type	Detailed	n	Prototypical function(s)	Ex.
V[erb]	V	75	Affirmatively answering a question	(1)
é ‘yes, okay’	é	398	Affirms information that matches the speaker’s knowledge	(2)
	pois é	44	Affirms information that matches the speaker’s knowledge and takes the turn	(12)
	ah é	9	Confirms an answer to a previous question and indicates a change of state in the speaker	(13)
tá ‘okay’	tá	77	Confirms an answer to a previous question Assents to an order	(3)
	ah tá	32	Confirms an answer to a previous question and indicates a change of state in the speaker	
	então tá	2	Confirms an answer to a previous question	(14)
sim ‘yes’	sim	16	Reflects comprehension of a piece of an interlocutor's continuing turn Confirms the appropriateness of some extralinguistic act	(15)
isso ‘that’s it’	isso	12	Marks a conclusion that the utterer of isso knew about beforehand and tried to inform the utterer of the antecedent about	(16)

In Table 2, we claim that the use of the prefaces pois ‘then’, ah ‘ah’ and então ‘then’ have specific functions in confirming affirmative responses. While we cannot go into detail in the description of these functions, they are typically used for managing the progression of the discourse. Placing pois before é seems typical for discourse situations where the speaker confirms a previous assertion and then grabs the turn to signal authority on this topic by developing the previous assertion. In example (12) two friends are discussing an acquaintance and reconstructing how she came into town to be treated at the hospital. At the beginning of the excerpt, LIA appears to

know more about the episode than LEO, as evident from the fact that LEO asks LIA in lines 1–2 to confirm that the acquaintance came without telling anyone about it. When LIA affirms this in lines 3–4 and adds that she came to be treated, LEO starts to remember the incident (line 5). He reacts to LIA's affirmation that they said goodbye to her with a pois é (line 7) and takes over the narration of the episode in line 8, adding new information.

Example (12): Veio sem falar

Source: C-ORAL BRASIL (Raso and Mello 2012), bfamdl25

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      01 LEO    [veio    sem] falar nAda com ninGUEM;
                come.PST.3SG without say.INF nothing with nobody
                'She came without telling anyone'
      02        sem sem falar pra onde tava [VIndo? ]
                without without say.INF to where be.PST.3SG go.PROG
                'Without without saying where she was going?'
      03 LIA                                [!NÃO!-=]
                                             no
                                             'No!'
      04        falou que vinha pra cá [tratAR-=]
                say.PST.3SG that come.PST.3SG to here treat
                'She said that she came here to be treated'
      05 LEO                              [AH: sei;]
                                           ah know.PRS.1SG
                                           'Ah! I know'
      06 LIA    =nós despediu [DEla de:-]
                we say.goodbye.PST.3SG of.her of
                'we said goodbye to her'
-->   07 LEO                  [pois É;= ]
                               then be.PRS.3.SG
                              'that's right'
      08        =mas não deu enderEço nem NAda.
                but not give.PST.3SG direction nor nothing
                'but she didn't even leave a direction'
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In contrast, ah tá cases typically signal that speakers consider a previous information question of theirs now sufficiently answered. The particle ah thus appears to indicate that a new piece of information has led to a changed knowledge state in the speaker and can thus be characterized, like English oh, as a "change-of-state token" (Heritage 1984). In example (13) two colleagues are conversing during a car drive. In line 1, BRU asks how she should drive back; AND answers this question in

lines 3-4. BRU responds to this assertion using ah é; which signals that she has understood the answer and considers the matter closed.

Example (13): Estrada velha

Source: C-ORAL BRASIL (Raso and Mello 2012), bfamdl08

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      01 BRU    e  pra voltAR;
                and to    return.INF
                'and to return'
      02        (1.0)
      03 AND    ((sneezes))
      04        pra voltAr eu acho    cê devia     voltar
                to    return.INF I    think.prs.1sg you should.PST.3SG return.INF
                pela estrada VELha;
                by.the road       old
                'to return I think that you should return by the old road'
-->   05 BRU    ah [É;=          ]
                ah   be.PRS.3.SG
                'ah alright'
      06 AND       [((snuffles))]
      07 BRU    =pra <<creaky>voltAR;>
                 to               return.INF
                 'to return'
```

The use of então appears to be very similar to the use of ah in that it signals that the speaker has received a satisfactory answer to a previous question. The main difference to ah is that no knowledge update is implied. Consider for instance example (14). In line 1 ANE asks a confirmation question ('Am I correct in assuming that it (the road) runs parallel to this one?'), which PED confirms in lines 2–3. In line 4 ANE thus acknowledges this information using então tá; the use of ah tá appears unwarranted in this context because it would have implied that ANE did not know that the road runs parallel to this one. Note that example (15) below will demonstrate that this situational meaning does not seem to be strictly dependent on então but is typical for non-modified uses of tá, as well.

Example (14): Paralela

Source: C-ORAL BRASIL (Raso and Mello 2012), bfamdl05

```
      01 ANE    é       paralela a ESsa?
                be.PRS.3.SG parallel    to this
                'is it parallel to this one?'
      02 PED    É;=
```

be.PRS.3.SG
'yes'

03 =paraLEla;
parallel
'parallel'

--> 04 ANE então TÁ.
then be.PRS.3.SG
'OK then'

Crucially for our purposes, we did not find any cases of these three prefaces before verbal affirmative responses other than é and tá. In keeping with normal variationist practice, in a third step of the delimitation of the variable context we excluded all cases with such prefaces from our corpus.

Table 2 also reveals that the use of bare particle responses (sim 'yes' and isso 'that's it') is infrequent in our BP data. The use of sim appeared to be considerably restricted by speaker, with 14/16 (88%) of the sim cases uttered by only three speakers. Qualitative analysis of these 16 tokens revealed that sim is never used in our data as an affirmative response to a prior question, as it can be in European Portuguese as in (7) above (Martins 2016: 595). Rather, it displays two primary functions: first, as an intervening response reflecting comprehension of a piece of an interlocutor's continuing turn; and second, as confirming the appropriateness of some extralinguistic act, such as approving a particular step of some joint physical task. The first of these two functions, exemplified in (15), appears to be more frequent in our data. NAT and CLA are planning an event about origami and NAT has proposed that they use a game with marbles in order for the participants to introduce themselves. NAT is explaining her plan of the event in lines 1-32. Note that the non-falling intonation at the end of each utterance (indicated by "-") serves to maintain the turn; at the end of line 2 she has clearly not finished presenting her plan. CLA's uttering sim appears to both signal comprehension and an encouragement to continue, which CLA does in line 4–5 (and beyond).

Example (15): Origami
Source: C-ORAL BRASIL (Raso and Mello 2012), bfamdl07

01 NAT pEga as bolINhas-=
take.PRS.3SG the marbles.DIM
we take the marbles'

02 =faz uma dinâmica lá fora com aquela
make.PRS.3SG a dynamic there out with that
questão do NOme-
question of.the name
'we create a dynamic situation out there regarding
the question of the names'

--> 03 CLA SIM;
yes
'yes'

04 CLA e AI-=
and then
'and then'

05 =depois a gente ENtra-
after the people enter.PRS.3SG
'after that we enter'

By contrast, isso (n=12) is typically used in situations in which the utterer of the antecedent comes to a conclusion that the utterer of isso knew about beforehand and tried to inform the utterer of the antecedent about, i.e. it marks the alignment of interlocutor common grounds post-mismatch. Thus, in example (16) BAL's use of isso in line 5 indicates that she has now understood why BAL wanted her to press stop in line 1.

Example (16): Stop

Source: C-ORAL BRASIL (Raso and Mello 2012), bfamdl32

01 BAL então a gente já gravou um bom bocaDINho-=
so the people already record.PST.3SG a good bit.DIM
'so we have already recorded quite a bit'

02 BAL =aperta o STOP-
press.PRS.3SG the stop
'press stop'

03 BMR hum hum;
mh mh
'mh mh'

04 ah NÃO,
ah no
'ah no'

05 pra terminar ME[SMO né?=]
to end.INF now right
'to turn this off, right?'

--> 06 BAL [ISso;]
this
'that's it'

07 BMR =TÁ.
be.PRS.3SG
'okay'

Given the low frequency of affirmative particle responses in our corpus, we excluded these cases from our subsequent analyses. The resulting corpus consisted of n=550 tokens of confirming affirmations.

3.3 Analytical approach

In the analysis of these data, we adopted a two-step approach in which we first used random forests (Breiman 2001; Strobl, Malley and Tutz 2009; Tagliamonte and Baayen 2012) to assess the conditional relevance of a number of predictors and then multinomial logistic regression analysis to estimate the direction and strength of these effects. Random forests can be understood as an exploratory statistical analysis of the correlations between the dependent variable and the predictor variables. A random forest consists of a number of classification and regression trees, each of which tries to predict the outcome of the dependent variable on the basis of recursive partitioning. In random forests, the ensemble of predictor variables used for each tree is randomly restricted, as a result of which the relevance of weaker effects, which would otherwise be overshadowed by more influential effects, can be evaluated (see the summary in Strobl, Malley and Tutz 2009). Random forests are thus an excellent tool for determining which variables should be included in later inferential statistical analysis.

Multinomial logistic regression analyses differ from binary logistic regression analyses only in that the categorical dependent variable has more than two levels (Orme and Combs-Orme 2009: 91-122). In other words, they can be used to calculate the multiple correlations between a categorical dependent variable of more than two levels and multiple predictor variables. This statistical configuration is difficult to interpret, which is why analyses typically rely on marginal effects. They thus measure the change in the dependent variable for one of the predictor variables when all of the other predictor variables are kept constant. In the present study, we adopted a marginal effects at representative values (MER) approach because all of the predictor variables were categorical. Consequently, the other predictor variables were kept constant at their most frequent value.

4. Results

The question of whether a response is echoic or not in BP is inextricably intertwined with the morphological type of the response: é and tá responses are less likely to be used as echoic responses than V responses. Table 3, which gives the distribution of echoicity by response type, clearly illustrates this fact.

Table 3. Distribution of echoicity by response type

	Non-echoic	Echoic

é	71% (284/398)	29% (114/398)	
tá	75% (58/77)	25% (19/78)	
V	5% (4/75)	95% (71/75)	
	Pairwise χ^2-tests:	é vs. V:	$\chi2(1)=112.8$, p<.001***
		tá vs. V:	$\chi2(1)=74.2$, p<.001***
		é vs. tá:	$\chi2(1)=0.6$, p>.05

We therefore created a dependent variable TYPE with manual interactions between echoicity and the morphological type of the response. In particular, we separated each of the three response types (V, é and tá) according to whether it was used echoically or not. Echoic uses were coded with the ditto mark ("), a typographical symbol indicating repetition, whereas non-echoic uses were not. Table 4 presents the distribution of the response types by the speech act of the antecedent.

Table 4. Distribution of response type by speech act and tag question

Type	Speech act of the antecedent			
	Question	Assertion with tag question	Assertion	Orders and proposals
"V	58% (41/71)	15% (11/71)	20% (14/71)	7% (5/71)
"é	26% (30/114)	24% (27/114)	50% (57/114)	0% (0/114)
"tá	47% (9/19)	11% (2/19)	42% (8/19)	0% (0/19)
V	0% (0/4)	0% (0/4)	0% (0/4)	100% (4/4)
é	8% (22/284)	19% (53/284)	68% (194/284)	5% (15/284)
tá	3% (2/58)	9% (5/58)	64% (37/58)	24% (14/58)

Given that there are various cells in the distribution in which no cases are attested (marked in grey in Table 4), we excluded (a) V responses and (b) cases with antecedents that are orders and proposals for the subsequent inferential statistical analysis. This led to the elimination of a total of 38 cases from our corpus. Lastly, for a total of eight cases, no personal information of the speakers was recorded in the corpus, so these cases were also excluded. These last exclusion procedures left a final total of 504 occurrences. Before continuing to describe the results from the analysis, let us take a closer look at the distribution of the excluded cases. First, note that non-echoic tá cases have a high relative frequency (about 24% of all non-echoic tá cases) in contexts in which the antecedent is an order or a proposal. It appears that the general function of tá responses is closely associated to the lexical meaning of estar, derived from Latin STARE ‘to stand’, which is then mapped onto discourse

structure by metaphor.[8] Thus, tá is used to affirm that an intervention by the previous speaker 'stands', i.e. can be incorporated into the Common Ground. When the previous intervention is an order or proposal, as in (3) above, the tá response can thus be interpreted as the speaker's consenting to this order or proposal. When the previous intervention is an affirmation, tá typically signals that a previous question by the utterer of tá has been answered satisfactorily and can thus be integrated into the Common Ground. Consider for instance example (17) from a conversation in a car (see also example 13).

Example (17): Sete Lagoas
Source: C-ORAL BRASIL (Raso and Mello 2012), bfamdl08

	01	BRU	e qUAnto tempo mais ou menos que eu GAsto;
			and how.much time more or less that I spend.PRS.1SG
			'And how long does it take me more or less'
	02	AND	para (.) chegar em [sete laGOAS?]
			to arrive.INF in Sete Lagoas
			'to arrive in Sete Lagoas?'
	03	BRU	[É;]
			be.PRS.3SG
			'Yes'
	04	AND	eh deve dar uma HOra;
			eh should.PRS.3SG give.INF an hour
			'eh that should take about an hour'
-->	05	BRU	TÁ;=
			be.PRS.3SG
			'okay'
	06		=só que EU vou (.) vou SAIR;
			only that I go.PRS.1SG go.PRS.1SG leave.INF
			'only that I will leave'

In line 1, BRU asks how long it takes her to get to the town of Sete Lagoas, however leaving out this latter part of the information question. In lines 2–3, AND and BRU therefore first have to negotiate the exact meaning of the question (note that BRU in line 3, uses a non-echoic é to affirm AND's polar question from line 2). When AND answers BRU's question in line 4, she responds to the answer using a non-echoic tá in line 5. Consequently, the meaning of tá in (15) can best be described as signaling 'receipt of information'; BRU signals that her question has been answered satisfactorily (see also example 14).

[8] In contrast, the verb ser is derived from Latin esse 'to be', which might be why it is better suited for 'existential' affirmations of truth. In other words, é affirms that the antecedent 'is', i.e. represents a state of affairs that does indeed exist in the world.

A second interesting observation is that while non-echoic V cases are extremely infrequent in our data (n=4), all of these appear in Order/Proposal contexts and have exactly the same form, i.e. pode ‘you can’. We give one example in (18). It thus appears that, similarly to tá, invariant pode has conventionalized the function of assenting to an order or proposal, albeit with a much lower level of usage frequency.

Example (18): Filhote
Source: C-ORAL BRASIL (Raso and Mello 2012), bfamdl22

	01	HHA	vou te dar MOEda;=
			go.PRS.1SG to.you give.INF money
			‘I’ll give you money’
	02		[TÁ,=]
			be.PRS.3SG
			‘okay?’
-->	03	BMR	[POde;]
			can.PRS.3SG
			‘okay’
	04	HHA	filHOte;
			son.DIM
			‘little one’

Having described the relevance of order/proposal contexts, we present the results of the statistical analysis of the portion of the data that represents the envelope of variation between the use of V, é and tá responses. We first conducted a random forest analysis using the cforest function of the Party package (Hothorn et al. 2015) in R (R Development Core Team 2017). The random forest calculated the multiple correlations between the dependent variable TYPE and the predictor variables summarized in Table 5. The variables ANTECEDENTSPEECHACT, ANTECEDENTNEGATED, ANTECEDENTMODAL and ANTECEDENTEPISTEMICMARKER measure the degree of the epistemic commitment of the utterer of the antecedent towards the antecedent proposition and consequently the epistemic gradient (see Section 2). The external variables SPEAKERSEX, SPEAKERAGE, SPEAKEREDUCATION and SPEAKERORIGIN are well-established measures of sociolinguistic variation. The levels "false" and "true" simply label whether the property of the predictor in question (e.g. negation, modality, epistemic marker) is present ("true") or absent ("false") in a given occurrence.

Table 5. Predictor variables in the random forest analysis

Predictors	Description	Levels

ANTECEDENTSPEECHACT	Type of speech act of antecedent and whether or not a tag question (TQ) is used	Question (n=99) AssertionTQ (n=97) Assertion (n=308)
ANTECEDENTNEGATED	Whether or not the antecedent is negated	False (n=469) True (n=35)
ANTECEDENTMODAL	Whether or not the antecedent carries modal meaning (through modal auxiliaries or subjunctive mood)	False (n=448) True (n=56)
ANTECEDENTEPISTEMICMARKER	Whether or not the antecedent includes an overt epistemic marker	False (n=467) True (n=37)
SPEAKERSEX	Sex of the utterer of the response	Female (n=343) Male (n=161)
SPEAKERAGE	Age of the utterer of the response	<25 (n=213) 26–40 (n=88) 41–60 (n=164) 60+ (n=39)
SPEAKEREDUCATION	Education of the utterer of the response	Low (n=76) Mid (n=232) High (n=196)
SPEAKERORIGIN	Province or country of birth or long-term residency of the utterer of the response	Minas Gerais (n=474) Rio de Janeiro (n=6) São Paulo (n=23) USA (n=1)

The random forest reached a c index of concordance of 0.84, which according to Tagliamonte and Baayen (2012: 156) indicates good model fit. Fig. 1 illustrates the results from the analysis. Every variable with a point right of the vertical line has an importance higher than 0. Thus, the random forest judges ANTECEDENTSPEECH act to be by far the best predictor of the variation, followed by SPEAKEREDUCATION, SPEAKERSEX, SPEAKERAGE and marginally, ANTECEDENTMODAL. In contrast, ANTECEDENTNEGATED, SPEAKERORIGIN and ANTECEDENTEPISTEMICMARKER are judged to be poor predictors of the variation.

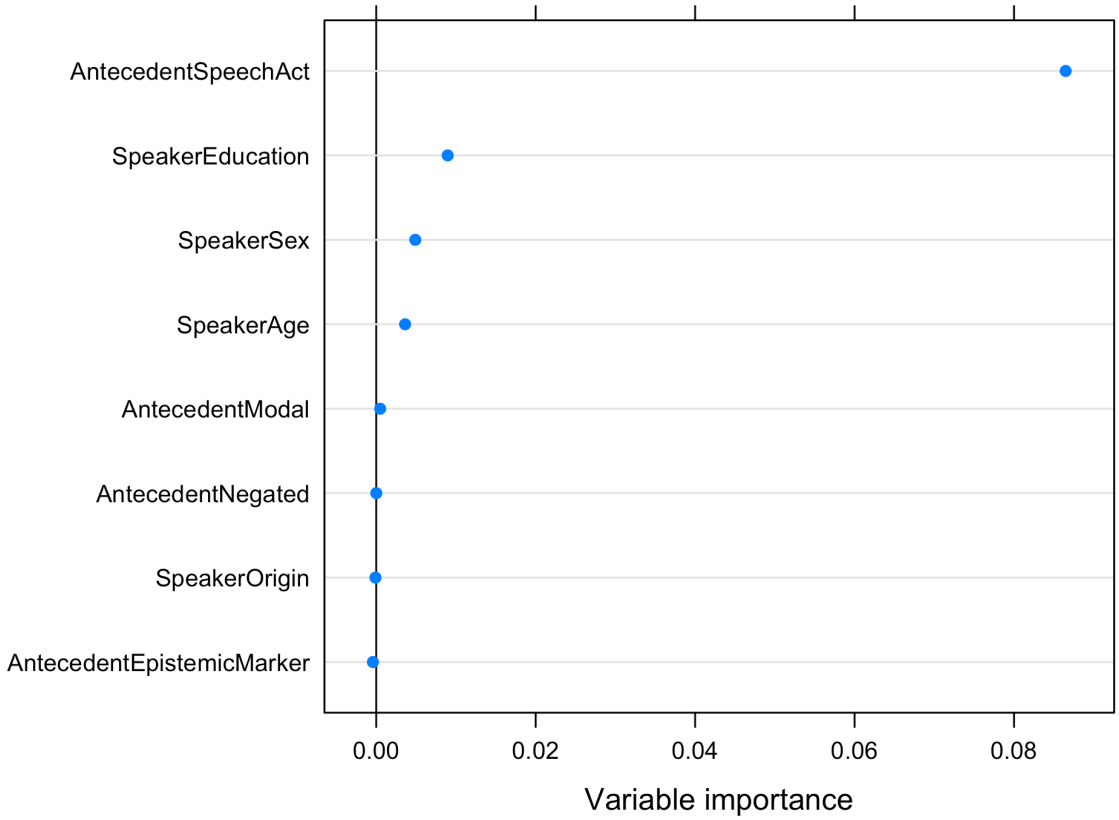

Figure 1. Conditional inference recursive partitioning trees for the dependent variable TYPE

In order to describe the direction and strength of the effects of the variables judged relevant by the random forest, we calculated a multinomial logistic regression analysis over the n=504 cases in our data, using the function multinom() from the nnet package (Ripley, Venables and R Development Core Team 2015) in R. In line with our analytical approach (see Section 3.3), we included only those predictor variables identified as relevant by the random forest analysis. The model formula was thus as in (19).

(19) TYPE ~ ANTECEDENTSPEECHACT + ANTECEDENTMODAL + SPEAKERSEX + SPEAKERAGE + SPEAKEREDUCATION

We found significant effects for all of the predictor variables (see Table 7 in the appendix for complete results). As described in Section 3.3, due to the fact that in multinomial logistic regression models the dependent variable has more than two levels, the visualization of the results is difficult. We therefore calculated the marginal effects by transforming the model coefficients into the predicted probability of each of the response types in a certain usage context, fixing the covariates at a specific value. The corresponding fixed values were ANTECEDENTSPEECHACT = 'Question',

ANTECEDENTMODAL = ‘False’, SPEAKERSEX = ‘Female’, SPEAKERAGE = ‘<25’ and SPEAKEREDUCATION = ‘Mid’.

Figure 2 visualizes the correlation between TYPE and ANTECEDENTSPEECHACT. First, the use of echoic responses (i.e. "V, "é and "tá) becomes less probable as the degree of epistemic commitment of the speaker increases, dropping from about 78 percent with question antecedents to about 30 percent with assertions. Inversely, we find significant increases in the use of non-echoic response types (tá and é), especially for é, which is by far the most probable response type with assertion antecedents (almost 60 percent).

Second, the results suggest that some response types are less affected by the degree of epistemic commitment of the antecedent than others. In particular, the use of echoic é is less affected by the differences in the speech act of the antecedent than echoic V and echoic tá. While the probability of echoic V and echoic tá responses drops from about 35 viz. 5% with question antecedents to about 4 viz. 1.5% with assertion antecedents (a decrease by a factor of 8.75 for echoic V and 3.3 for echoic tá), the probability of echoic é only drops from about 37% with question antecedents to about 24% with assertion antecedents (a decrease by a factor of 1.5).

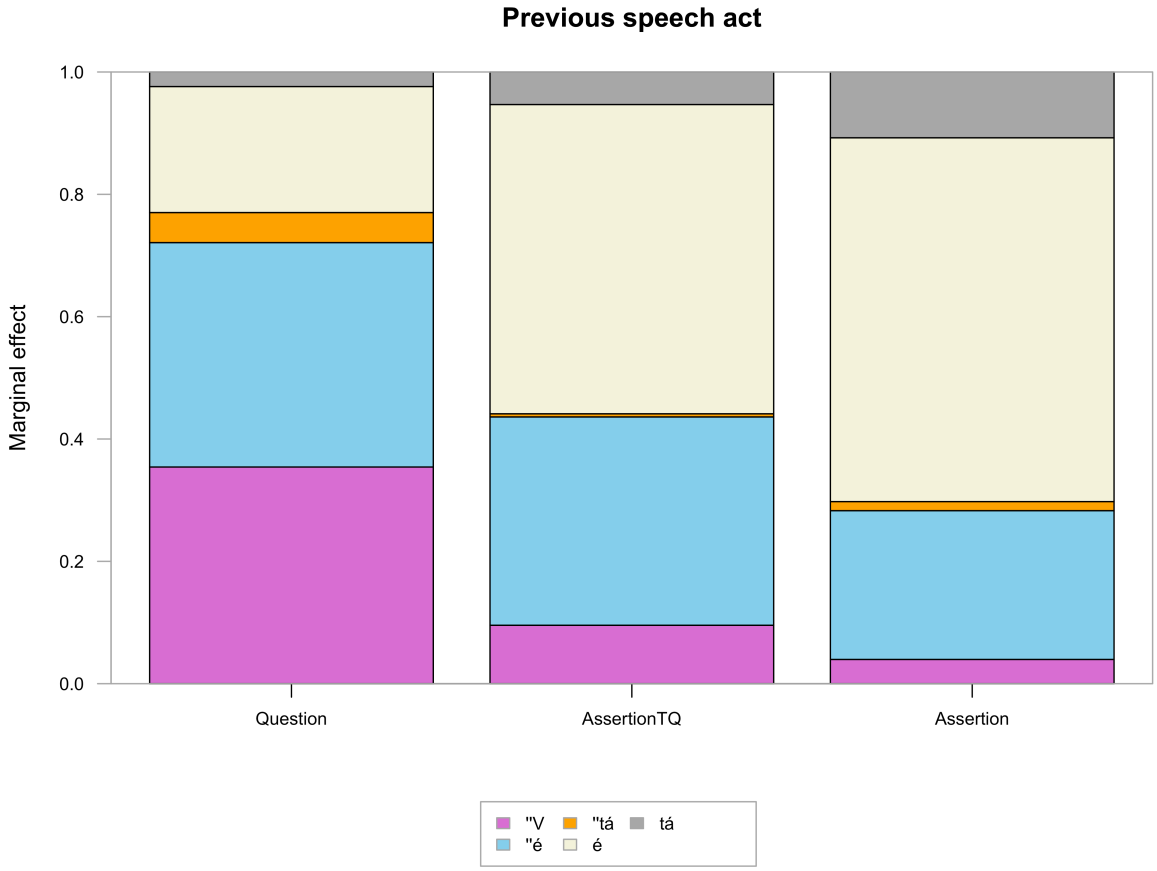

Figure 2. Effect plot for the correlation between TYPE and ANTECEDENTSPEECHACT in the multinomial logistic regression model

Figure 3 illustrates the results for the predictor ANTECEDENTMODAL. An echoic response is overall less likely to be produced when the verb in the antecedent is part of a modal auxiliary construction (such as ter que 'have to' or poder 'can') or is conjugated in the subjunctive mood ("true" on the x-axis of Figure 3). When these modal features are not found in the antecedent ("false" on the x-axis of Figure 3), an echoic response is more likely. Crucially however, this effect of modalized antecedents only applies to echoic é and echoic tá cases. While echoic é and tá responses are nonexistent in contexts with modalized antecedents, the probability of echoic V responses actually increases in these contexts.

Consequently, the overall negative effect of modality on echoicity is mostly conditioned by the decrease of the probability of echoic é and tá responses with modalized antecedents. This decrease can be explained on the basis of purely structural reasons; quite trivially, é and tá cannot be used as echoic responses to modal auxiliaries (formed from verbs other than ser and estar) or subjunctive mood (because é and tá are conjugated in the indicative).

Figure 3. Effect plot for the correlation between TYPE and ANTECEDENTMODAL in the multinomial logistic regression model

Lastly, the model also found significant effects for the social predictors. The model found that highly educated speakers (i.e. those with university education), as well as women (in contrast to men) prefer non-echoic tá over echoic V responses. Further testing using conditional inference trees (Tagliamonte and Baayen 2012) revealed an interaction between SPEAKERAGE and SPEAKEREDUCATION, where specifically the younger highly educated speakers (i.e. university students) and in older age groups, women, prefer non-echoic tá over echoic V. Further examination of the patterns of individual speakers showed, however, that this is a probabilistic tendency, not e.g. an instance of competing grammatical systems.[9] Speakers who show a preference for non-echoic tá continue to use echoic V, and vice versa, as well as the other affirmative response strategies in their repertoire.

5. Discussion of findings

[9] We thank an anonymous reviewer for suggesting this possibility, which led us to inspect the results by individual speaker.

Our results shed light both on the overarching question of the function of echoic responses in languages like BP and the more specific question of how different response types are distributed in BP, which furthermore allows us to hypothesize about the origin of the different response types. First, the probability of an echoic response in confirming affirmations in BP crucially depends on the epistemic gradient.[10] The lower the degree of epistemic commitment of the antecedent utterer towards the antecedent, the higher the likelihood that an echoic response is used, and vice versa. At the lower end of the continuum of epistemic commitment are polar questions, a speech act type that asks for the confirmation of the proposition. In such contexts, the use of echoic responses is very likely. At the higher end we find assertions, a speech act type in which the speakers position themselves as epistemic authorities on the information. In these contexts, the hearer will typically acknowledge the receipt of the information by using non-echoic é 'is'. In line with Enfield et al.'s (2012) description of the epistemic gradient, we assume that tag questions and modal meanings have a 'tilting' function; they make the antecedent utterer's commitment towards the antecedent less absolute. As a result, the probability of echoic responses increases significantly when the antecedent contains a tag question or expresses modal meaning.

This result is explained by the fact that non-echoic and echoic responses represent fundamentally different strategies for managing Common Ground. Particle responses like English 'yes' and BP non-echoic é only transmit affirmation. Consequently, the proposition being affirmed is left unspecified and must be reconstructed by the hearer. While previous approaches to the syntax and semantics of affirmation such as Krifka (2013) and Holmberg (2016) disagree on the exact nature of this reconstruction process, it is undisputed that the answer 'yes' to the antecedent 'Is John coming?' can be paraphrased as 'Yes, John is coming'.

In echoic responses, the affirmed proposition does not need reconstruction by the hearer. Rather, the response itself repeats the (crucial part of the) previous proposition. Echoic responses can thus be characterized as instances of dialogic resonance, a concept developed in dialogic syntax (DuBois 2014) (see Laury 2017 for application of this concept to echoic responses in Finnish). DuBois defines dialogic resonance as 'the catalytic activation of affinities across utterances' (372). By using an utterance that repeats parts of a previous utterance, speakers invite the inference that their utterance is closely linked to the previous utterance, i.e. it generates a "level of formal engagement" (366) between the utterance and its

[10] As noted by an anonymous reviewer, the predictions of the epistemic gradient model do not appear to correspond to reversing affirmations in a clear manner, given that, e.g., a bare verbal response in BP can seemingly convey an affirmative denial to diverse prior utterance types (negative questions, negative tag questions, negative assertions). While outside the scope of the present paper, this issue deserves attention in future work. Nonetheless we note that it has already been dealt with in some prior work on BP negation (e.g. Schwenter 2005), albeit from a different perspective, where it is shown that different kinds of negative responses — both confirming and reversing — correlate with the interlocutor's epistemic commitment to the antecedent. We believe that the epistemic gradient model could also be applied to these phenomena with fruitful results.

antecedent. The echoic strategy itself connects the antecedent and the affirmative response. As a result, echoic responses are more specific than particle responses with respect to reference to their antecedents; a hearer of an echoic response has no problems identifying the antecedent.

The inverse relationship between the epistemic commitment of the speaker towards the antecedent and the echoicity of the response can be explained by this basic difference regarding the specificity of reference to the antecedent of non-echoic and echoic responses. In a context where the speaker can choose between an echoic and non-echoic response, the echoic response will usually be stronger from a pragmatic point of view due to its specificity. On the basis of the dialogic resonance created by such echoicity, upon hearing the affirmative response, the utterer of the antecedent will interpret the response as stronger proof of alignment between the interlocutors' common grounds than a non-echoic response. In repeating the proposition, the speaker asserts the proposition in a complete, i.e. more explicit form than by using a non-echoic response. Consequently, by using an echoic response, the speaker also assumes epistemic responsibility for the proposition to a greater degree. In contrast, in non-echoic responses the construction of the exact meaning of the response by the hearer relies on both the response itself and the correctly drawn inference by the hearer regarding which proposition is being confirmed. Due to the fact that this is a collaborative process of meaning construction, the speaker to some degree assumes less epistemic responsibility over the proposition. We assume that this mechanism is universal, given that in languages such as English that do not possess a system of echoic answers in the strict sense repeating the antecedent in the response leads to similar pragmatic effects. Consider example (20) below, in which the verbatim repetition in (20b) seems to be a stronger affirmation than the use of the polar response particle yeah in (20a).

(20) A: So that was the problem?
a. B: Yeah.
b. B: That was the problem.

A comparable idea about the function of echoicity appears to underlie Sorjonen's (2001a; b) analysis of echoic answers in Finnish. According to Sorjonen's analysis, it is possible to respond to an information-seeking question in Finnish both by repeating the verb and using the joo 'yes' response. The pragmatic difference between the two options is that joo is used when the question encodes "an assumption that the information is already shared to some extent by the participants" (Sorjonen 2001b: 425). In other words, joo is used when the response utterer does not have to assume full epistemic authority over the truth of the response because she assumes that the antecedent utterer does so, as well.

The idea that echoic affirmative responses signal Common Ground alignment to a greater extent than non-echoic affirmative responses explains the influence of epistemic commitment on the distribution of affirmative response types in BP. Antecedents with a low degree of the speaker's epistemic commitment (typically,

questions) call for stronger signals of Common Ground alignment than antecedents with a high degree of epistemic commitment (i.e. assertions).

By applying the notion of the epistemic gradient to the description of the BP response system we are thus able to explain the distribution of echoic and non-echoic confirming affirmations. Crucially however, the epistemic gradient might also explains why reversing affirmations (as in Não chegou o João. – Chegou sim!, see example (5)) are typically echoic in BP. By using the polar particle sim, the echoic response retrospectively tilts the epistemic gradient, implying that the utterer of the response actually has a higher degree of epistemic authority over the (negated) antecedent than the utterer of the antecedent, similar to contexts with question antecedents. In this sense reversing confirming affirmations are very similar to responses that simply contradict the antecedent, as in Chegou o João. 'João arrived.' – Saiu! 'He left!'. The utterer of Saiu! claims epistemic authority not only over the fact that João left but also over the antecedent. The response implies that João did NOT arrive on the basis of the contrast between 'arrived' and 'left'. In reversing confirming affirmations, the use of the echoic verb alone thus is not felicitous because the scalar value of simple chegou is not enough to express the contrast; like exclamative intonation, the sim in reversing confirming affirmations helps to establish the contrast between the two propositions that is necessary for the response utterer's claim of epistemic authority.

Our analysis also demonstrates that previous characterizations of BP as a language with an echoic response system are inexact in that the BP response system should be considered a mixed system in which echoic and non-echoic responses have distinct discourse functions. We have seen that in the chosen envelope of variation, only two specific verb forms (é and tá, both meaning 'be.PRS.3SG') can be used as non-echoic affirmative responses. Tá and especially é behave very similarly to affirmative particle responses such as English yes in that they are not only used as affirmative responses to a previous polar question, but also to assertions, orders and proposals. Given that é and tá are merely verb forms, we may hypothesize that the non-echoic uses of é and tá are innovative. It may well be that due to the high usage frequency of these verb forms in antecedents the response use of é and tá became conventionalized and only in a second step came to be used in non-echoic contexts.

Our analysis has revealed two aspects of the distribution of é and tá that can be considered evidence for this hypothesis. First, the use of echoic é is less affected by the differences in the speech act of the antecedent than echoic V and echoic tá. Consequently, it appears that use of é is governed to a lesser degree by the epistemic gradient than that of tá and especially V. This finding is consonant with the assumption of the emancipation of é from its original, echoic, usage context and its extension into non-echoic contexts. Second, the analysis also revealed that young and highly educated speakers and women prefer the use of non-echoic tá over echoic V. In line with classical assumptions from variationist sociolinguistics (Labov 2001), speakers with these characteristics are typically considered promoters of change. Consequently, tá in BP may eventually replace é as the canonical non-

echoic affirmative response format. However, we showed that the opposition between non-echoic é and non-echoic tá in BP is also governed by the speech act of the antecedent, in that non-echoic tá is much more likely to be used as a response to orders and proposals than non-echoic é, and this distinction will need to be neutralized before tá replaces é as the canonical response form.

6. Conclusion

In her discussion of the functions of repetition in conversation, Tannen (2007: 48-101) argues that repetition not only benefits production and comprehension of language due to its efficiency but also "evidences a speaker's attitude, showing how it contributes to the meaning of the discourse" (60). The fundamental function of repetition in interaction is thus to create interpersonal involvement (61), which is frequently necessary for efficient Common Ground management. Thus, according to Tannen (2007: 61) repetition can have at least the following functions:

> getting or keeping the floor, showing listenership, providing back-channel response, stalling, gearing up to answer or speak, humor and play, savoring and showing appreciation of a good line or a good joke, persuasion […], linking one speaker's ideas to another's, ratifying another's contributions (including another's ratification), and including in an interaction a person who did not hear a previous utterance

Our paper has demonstrated that along these same lines, the selection of echoic and non-echoic confirming affirmations in BP is dependent on the level of interpersonal involvement of the interlocutors in that echoic responses are used in contexts with a strong epistemic gradient, which require a strong signal of Common Ground alignment. In contexts with a more balanced epistemic gradient (e.g., antecedents with a tag question or modalized meanings), non-echoic responses are preferred. Due to the fact that they literally take the word from the mouth of the utterer of the antecedent and are therefore highly specific with respect to the question of which proposition is being affirmed, echoic confirming affirmations strongly signal Common Ground alignment and thus confer a greater degree of interpersonal involvement than non-echoic responses.

These results suggest that Farkas and Bruce's (2010) well-known distinction between relative and absolute polarity features, while broadly applicable to the BP data, is not fine-grained enough to describe the full system of BP (confirming) affirmative responses. It does not take into the account the fact that the epistemic commitment of speakers towards the proposition in their utterances is a matter of degree, which is why the difference between assertions and questions is also a gradual notion moderated by, e.g., tag questions and modalizing expressions which cover a kind of "middle ground" between the assertion and question poles. In contrast, the notion of the epistemic gradient not only explains the structured variation between echoic and non-echoic responses within the domain of confirming affirmations, but also the preference for echoic responses in reversing affirmations.

The study also suggests a potential historical development from echoic to non-echoic confirming affirmations, subject to confirmation with suitable diachronic data, which could be of interest to further historical and typological studies.[11] In particular, given that the effect of the epistemic gradient is weaker for é responses than other verbal responses, é appears to have undergone a process of conventionalization that coincides with an increase in formulaicity. In this sense, é (and to some degree, tá) can no longer be considered an echoic confirming affirmation even in contexts where it does echo a previous é, and no longer has the effect of signaling strong Common Ground alignment. Consequently, the grammar of confirming affirmations in spoken BP should be considered a mixed system, in which echoic and non-echoic confirming affirmations coexist and display distinct, yet at times overlapping, discourse functions.

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[11] Echoic affirmative responses in Romance languages such as Portuguese appear to be derived from Latin, where echoic affirmative responses were already common. Latin did not have a word for 'Yes' (Brown, Joseph and Wallace 2009: 515).

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Appendix

Table 6. Transcription conventions GAT 2 (Selting et al. 2011)

[ ]	overlap and simultaneous talk
=	immediate continuation with a new turn or segment (latching)
°h / h°	in- / outbreaths of appr. 0.2-0.5 sec. duration
°hh / hh°	in- / outbreaths of appr. 0.5-0.8 sec. duration
(.)	micro pause, estimated, up to 0.2 sec. duration appr.
(0.5)	measured pause of appr. 0.5 sec. duration
:	lengthening.
and_uh	cliticizations within units
haha, hehe, hihi	syllabic laughter
((laughs)), ((cries))	description of vocal activities
<<laughing> >	description of voice properties with indication of scope
<<:-)> so>	smile voice
SYLlable	focus accent
sYllable	secondary accent
?	high-rise intonation
,	mid-rise intonation
–	level-intonation
;	fall-to-mid intonation

.	fall-to-low intonation
<<h> >	higher pitch register
<<f> >	forte, loud
<<p> >	piano, soft
<<pp> >	pianissimo, very soft
<<all> >	allegro, fast
<<len> >	lento, slow
( )	unintelligible passage
(xxx), (xxx xxx)	one or two unintelligible syllables
(may i)	assumed wording

Table 7. Complete results from the multinomial logistic regression model (dependent variable = TYPE)

Variable	Level	SUM	‘’V (RL)	‘’é				'tá				é				tá			
		n	n	n	CF	SE	P	n	CF	SE	P	n	CF	SE	P	n	CF	SE	P
(Intercept)			-	-	-0.60	0.57	>.05	-	-1.60	0.89	>.05	-	-0.92	0.54	>.05	-	-4.44	1.36	<.01
ANTECEDENT SPEECHACT	Question (RL)	99	39	29	-	-	-	7	-	-	-	22	-	-	-	2	-	-	-
	AssertionTQ	97	11	27	1.24	0.47	<.01	1	-0.94	1.16	>.05	53	2.21	0.45	<.001	5	2.11	0.94	<.05
	Assertion	308	14	57	1.78	0.41	<.001	8	0.99	0.62	>.05	192	3.25	0.40	<.001	37	3.70	0.82	<.001
ANTECEDENT MODAL	False (RL)	448	57	113	-	-	-	16	-	-	-	223	-	-	-	39	-	-	-
	True	56	7	0	-15.53	0.000	<.001	0	-14.02	0.000	<.001	44	0.38	0.51	>.05	5	-0.12	0.72	>.05
SPEAKER SEX	Female (RL)	343	48	71	-	-	-	11	-	-	-	172	-	-	-	41	-	-	-
	Male	161	16	42	0.56	0.42	>.05	5	-0.22	0.75	>.05	95	0.51	0.40	>.05	3	-1.62	0.77	<.05
SPEAKER AGE	<25 (RL)	213	25	52	-	-	-	6	-	-	-	102	-	-	-	28	-	-	-
	26-40	88	15	10	-1.34	0.50	<.01	2	-0.65	0.90	>.05	49	-0.44	0.44	>.05	12	-0.54	0.56	>.05
	41-60	164	19	40	-0.18	0.42	>.05	7	0.47	0.71	>.05	95	-0.07	0.40	>.05	3	-1.38	0.76	>.05
	60+	39	5	11	0.06	0.70	>.05	1	0.12	1.30	>.05	21	-0.17	0.66	>.05	1	-0.40	1.28	>.05
	Low (RL)	76	12	16	-	-	-	3	-	-	-	44	-	-	-	1	-	-	-

SPEAKER EDUCATION	Mid	232	35	56	0.64	0.54	>.05	5	-0.38	0.89	>.05	125	0.38	0.50	>.05	11	1.74	1.19	>.05
	High	196	17	41	0.48	0.59	>.05	8	0.66	0.92	>.05	98	0.14	0.54	>.05	32	3.14	1.19	<.01

Model evaluation: AIC = 1125.6

Legend: RL = reference level, n = number of occurrences, CF = coefficient, SE = standard error, P = p value